The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

February 16, 2021

Elizabeth Tillotson
Executive Director of Administration & Regulatory Affairs
Granite Shore Power
431 River Road
Bow, NH 03304

Subject: Granite Shore Power Merrimack LLC – Merrimack Station
NPDES Permit No. NH0001465
pH Limit Adjustment

Dear Ms. Tillotson:

On December 9, 2020, Granite Shore Power Merrimack LLC (GSP) submitted to the New Hampshire Department of Environment Services (NHDES) a report prepared by Normandeau Associates, Inc. titled, "Evaluation of Ambient pH in the Merrimack River at the Cooling Water Intake of Merrimack Station" and requested that the permitted pH range in Merrimack Station's National Pollutant Discharge Elimination System (NPDES) permit (NH0001465) be revised from 6.5-8.0 standard units (SU) to 6.0-9.0 SU.

The report cites section I.F.4 of NPDES Permit No. NH0001465 as the basis for this request. Section I.F.4 says, "The pH range of 6.5 to 8.0 Standard Units (S.U.) must be achieved in the final effluent unless the Permittee can demonstrate to NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water or (2) that the naturally occurring receiving water pH is not significantly altered by the Permittee's discharge. The scope of any demonstration project must receive prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits outside the range of 6.0 - 9.0 S.U., which is the federal effluent limitation guidelines for pH commonly found in 40 CFR subchapter N Parts 405 through 471." The discussion in the report aligns with option 1, and aims to show that the pH range should be widened due to naturally occurring conditions in the receiving water.

After reviewing the pH study provided in the December 9, 2020 correspondence, NHDES does not support a revision to the permitted pH range in Merrimack Station's NPDES permit. The data provided in the report shows that the pH in the Merrimack River at Monitoring Station N-5, which is located approximately 2,200 feet upstream of the Station cooling water discharge, is outside of the pH range of 6.5-8.0 SU an average of five percent of the time. In order for NHDES to support a revision to the pH range in a NPDES permit under option 1, which says that the range should be widened due to naturally occurring conditions, the pH in the receiving water would need to be outside of the permitted range and without additional anthropogenic drivers at those times that the pH is outside of the permitted range.

The report fails to provide evidence that the pH exceedances that occur five percent of the time are naturally occurring. The report discusses that "low pH events in rivers and streams are generally associated with low pH rainfall/snowmelt runoff events during high flows while high pH events…seem to be associated with diel cycling of periphyton photosynthetic activity during low flows." However, sufficient data specific to this location in the

Merrimack River is not provided to support this discussion. In addition, while the report states that the pH conditions in the Merrimack River that are outside of the range of 6.5-8.0 SU are "beyond the control of the Station," this does not necessarily mean that the ambient conditions are naturally occurring. NHDES does not consider low pH rainfall or snowmelt to be a naturally occurring condition, and the diel cycling of periphyton photosynthetic activity cannot be considered natural in a system receiving nutrient loads from multiple wastewater facilities and anthropogenic stormwater runoff.

NHDES recommends that the permitted pH range included in GSP's NPDES permit for Merrimack Station remain 6.5-8.0 SU. The U.S. Environmental Protection Agency (EPA) is copied on this correspondence as notification of NHDES's recommendation.

As noted in section I.F.4 of NPDES Permit No. NH0001465, the scope of any pH demonstration project must receive prior approval from NHDES-WD. For any future pH demonstrations, please contact NHDES prior to performing such an analysis, so that we may offer our comments and technical assistance, and provide any necessary information that may be helpful to ensure the scope of the demonstration project meets our requirements.

Should you have any questions relative to this letter, please do not hesitate to contact me at (603) 271-6637.

Sincerely,

Stergios K. Spanos, P.E., Supervisor
Permits and Compliance Section
Wastewater Engineering Bureau

cc. Damien Houlihan, EPA-Region 1
Tracy Wood, P.E., DES-WWEB